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ance Notes on Codes and Abbreviations" appearing at the begin-  
ning of each regular issue of the PCT Gazette.*

(54) Title: LOW-PRESSURE GAS DISCHARGE LAMP WITH AN ALKALINE EARTH OXIDE MIXTURE AS THE ELEC-  
TRON EMITTER SUBSTANCE

(57) Abstract: A low-pressure gas discharge lamp is described, which is equipped with a gas-discharge vessel containing an inert gas filling as the buffer gas and an indium, thallium and/or copper halide, and with electrodes and with means for generating and maintaining a low-pressure gas discharge, wherein it has, as the electron emitter substance, a mixture of BaO, SrO, CaO and MgO, wherein: a) the molar proportion of BaO is less than 1 percent by weight b) the molar proportion of SrO is less than 10 percent by weight c) the sum of the molar proportions of CaO and MgO is greater than 90 percent by weight, wherein the CaO proportion in the CaO/MgO mixture lies between 10 and 90 percent by weight.

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## INTERNATIONAL SEARCH REPORT

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Minimum documentation searched (classification system followed by classification symbols)

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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

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## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	DE 100 44 562 A (PHILIPS CORP INTELLECTUAL PTY) 21 March 2002 (2002-03-21) cited in the application claims 3-6	1-5
A	US 6 137 225 A (GEVEN ANDREAS S G ET AL) 24 October 2000 (2000-10-24) column 2, lines 10-21 column 2, lines 39-56	1-5
A	PATENT ABSTRACTS OF JAPAN vol. 013, no. 220 (E-762), 23 May 1989 (1989-05-23) & JP 01 033844 A (HITACHI LTD), 3 February 1989 (1989-02-03) abstract	1-5



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Patent family members are listed in annex.

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Patent document cited in search report		Publication date	Patent family member(s)	Publication date
DE 10044562	A	21-03-2002	DE 10044562 A1	21-03-2002
			CN 1342994 A	03-04-2002
			EP 1187174 A2	13-03-2002
			JP 2002124211 A	26-04-2002
			US 2002047525 A1	25-04-2002
US 6137225	A	24-10-2000	DE 69823643 D1	09-06-2004
			EP 0946968 A1	06-10-1999
			WO 9921213 A1	29-04-1999
			JP 2001506402 T	15-05-2001
JP 01033844	A	03-02-1989	NONE	